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Sequence Listing was accepted.
If you need help call the Patent Electronic Business Center at (866) 217-9197 (toll free).
Reviewer: Keisha Douglas
Timestamp: [year=2008; month=7; day=24; hr=13; min=22; sec=56; ms=702; ]
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**Validated By CRFValidator v 1.0.3**

Application No: 10568414 Version No: 3.1

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**Finished:** 2008-07-24 13:19:21.088
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**No. of SeqIDs Defined:** 23
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<110> Aasly, Jan O.
Wszolek, Zbigniew K.
Farrer, Matthew J.

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Glu Thr Leu Val Gln Ile Leu Glu Asp Leu Leu Val Phe Thr Tyr Ser
        35                  40                  45
Glu His Ala Ser Lys Leu Phe Gln Gly Lys Asn Ile His Val Pro Leu
    50                  55                  60
Leu Ile Val Leu Asp Ser Tyr Met Arg Val Ala Ser Val Gln Gln Val
65                  70                  75                  80
Gly Trp Ser Leu Leu Cys Lys Leu Ile Glu Val Cys Pro Gly Thr Met
                85                  90                  95
Gln Ser Leu Met Gly Pro Gln Asp Val Gly Asn Asp Trp Glu Val Leu
            100                 105                 110
Gly Val His Gln Leu Ile Leu Lys Met Leu Thr Val His Asn Ala Ser
        115                 120                 125
Val Asn Leu Ser Val Ile Gly Leu Lys Thr Leu Asp Leu Leu Leu Thr
    130                 135                 140
Ser Gly Lys Ile Thr Leu Leu Ile Leu Asp Glu Glu Ser Asp Ile Phe
```

```
145                 150                 155                 160
Met Leu Ile Phe Asp Ala Met His Ser Phe Pro Ala Asn Asp Glu Val
                165                 170                 175
Gln Lys Leu Gly Cys Lys Ala Leu His Val Leu Phe Glu Arg Val Ser
            180                 185                 190
Glu Glu Gln Leu Thr Glu Phe Val Glu Asn Lys Asp Tyr Met Ile Leu
        195                 200                 205
Leu Ser Ala Ser Thr Asn Phe Lys Asp Glu Glu Glu Ile Val Leu His
    210                 215                 220
Val Leu His Cys Leu His Ser Leu Ala Ile Pro Cys Asn Asn Val Glu
225                 230                 235                 240
Val Leu Met Ser Gly Asn Val Arg Cys Tyr Asn Ile Val Val Glu Ala
                245                 250                 255
Met Lys Ala Phe Pro Met Ser Glu Arg Ile Gln Glu Val Ser Cys Cys
            260                 265                 270
Leu Leu His Arg Leu Thr Leu Gly Asn Phe Phe Asn Ile Leu Val Leu
        275                 280                 285
Asn Glu Val His Glu Phe Val Val Lys Ala Val Gln Gln Tyr Pro Glu
    290                 295                 300
Asn Ala Ala Leu Gln Ile Ser Ala Leu Ser Cys Leu Ala Leu Leu Thr
305                 310                 315                 320
Glu Thr Ile Phe Leu Asn Gln Asp Leu Glu Glu Lys Asn Glu Asn Gln
                325                 330                 335
Glu Asn Asp Asp Glu Gly Glu Glu Asp Lys Leu Phe Trp Leu Glu Ala
            340                 345                 350
Cys Tyr Lys Ala Leu Thr Trp His Arg Lys Asn Lys His Val Gln Glu
        355                 360                 365
Ala Ala Cys Trp Ala Leu Asn Asn Leu Leu Met Tyr Gln Asn Ser Leu
    370                 375                 380
His Glu Lys Ile Gly Asp Glu Asp Gly His Phe Pro Ala His Arg Glu
385                 390                 395                 400
Val Met Leu Ser Met Leu Met His Ser Ser Ser Lys Glu Val Phe Gln
                405                 410                 415
Ala Ser Ala Asn Ala Leu Ser Thr Leu Leu Glu Gln Asn Val Asn Phe
            420                 425                 430
Arg Lys Ile Leu Leu Ser Lys Gly Ile His Leu Asn Val Leu Glu Leu
        435                 440                 445
Met Gln Lys His Ile His Ser Pro Glu Val Ala Glu Ser Gly Cys Lys
    450                 455                 460
Met Leu Asn His Leu Phe Glu Gly Ser Asn Thr Ser Leu Asp Ile Met
465                 470                 475                 480
Ala Ala Val Val Pro Lys Ile Leu Thr Val Met Lys Arg His Glu Thr
                485                 490                 495
Ser Leu Pro Val Gln Leu Glu Ala Leu Arg Ala Ile Leu His Phe Ile
            500                 505                 510
Val Pro Gly Met Pro Glu Glu Ser Arg Glu Asp Thr Glu Phe His His
        515                 520                 525
Lys Leu Asn Met Val Lys Lys Gln Cys Phe Lys Asn Asp Ile His Lys
    530                 535                 540
Leu Val Leu Ala Ala Leu Asn Arg Phe Ile Gly Asn Pro Gly Ile Gln
545                 550                 555                 560
Lys Cys Gly Leu Lys Val Ile Ser Ser Ile Val His Phe Pro Asp Ala
                565                 570                 575
Leu Glu Met Leu Ser Leu Glu Gly Ala Met Asp Ser Val Leu His Thr
            580                 585                 590
Leu Gln Met Tyr Pro Asp Asp Gln Glu Ile Gln Cys Leu Gly Leu Ser
        595                 600                 605
```

```
Leu Ile Gly Tyr Leu Ile Thr Lys Lys Asn Val Phe Ile Gly Thr Gly
    610                 615                 620
His Leu Leu Ala Lys Ile Leu Val Ser Ser Leu Tyr Arg Phe Lys Asp
625                 630                 635                 640
Val Ala Glu Ile Gln Thr Lys Gly Phe Gln Thr Ile Leu Ala Ile Leu
                645                 650                 655
Lys Leu Ser Ala Ser Phe Ser Lys Leu Leu Val His His Ser Phe Asp
            660                 665                 670
Leu Val Ile Phe His Gln Met Ser Ser Asn Ile Met Glu Gln Lys Asp
        675                 680                 685
Gln Gln Phe Leu Asn Leu Cys Cys Lys Cys Phe Ala Lys Val Ala Met
    690                 695                 700
Asp Asp Tyr Leu Lys Asn Val Met Leu Glu Arg Ala Cys Asp Gln Asn
705                 710                 715                 720
Asn Ser Ile Met Val Glu Cys Leu Leu Leu Leu Gly Ala Asp Ala Asn
                725                 730                 735
Gln Ala Lys Glu Gly Ser Ser Leu Ile Cys Gln Val Cys Glu Lys Glu
            740                 745                 750
Ser Ser Pro Lys Leu Val Glu Leu Leu Leu Asn Ser Gly Ser Arg Glu
        755                 760                 765
Gln Asp Val Arg Lys Ala Leu Thr Ile Ser Ile Gly Lys Gly Asp Ser
    770                 775                 780
Gln Ile Ile Ser Leu Leu Leu Arg Arg Leu Ala Leu Asp Val Ala Asn
785                 790                 795                 800
Asn Ser Ile Cys Leu Gly Gly Phe Cys Ile Gly Lys Val Glu Pro Ser
                805                 810                 815
Trp Leu Gly Pro Leu Phe Pro Asp Lys Thr Ser Asn Leu Arg Lys Gln
            820                 825                 830
Thr Asn Ile Ala Ser Thr Leu Ala Arg Met Val Ile Arg Tyr Gln Met
        835                 840                 845
Lys Ser Ala Val Glu Glu Gly Thr Ala Ser Gly Ser Asp Gly Asn Phe
    850                 855                 860
Ser Glu Asp Val Leu Ser Lys Phe Asp Glu Trp Thr Phe Ile Pro Asp
865                 870                 875                 880
Ser Ser Met Asp Ser Val Phe Ala Gln Ser Asp Asp Leu Asp Ser Glu
                885                 890                 895
Gly Ser Glu Gly Ser Phe Leu Val Lys Lys Lys Ser Asn Ser Ile Ser
            900                 905                 910
Val Gly Glu Phe Tyr Arg Asp Ala Val Leu Gln Arg Cys Ser Pro Asn
        915                 920                 925
Leu Gln Arg His Ser Asn Ser Leu Gly Pro Ile Phe Asp His Glu Asp
    930                 935                 940
Leu Leu Lys Arg Lys Arg Lys Ile Leu Ser Ser Asp Asp Ser Leu Arg
945                 950                 955                 960
Ser Ser Lys Leu Gln Ser His Met Arg His Ser Asp Ser Ile Ser Ser
                965                 970                 975
Leu Ala Ser Glu Arg Glu Tyr Ile Thr Ser Leu Asp Leu Ser Ala Asn
            980                 985                 990
Glu Leu Arg Asp Ile Asp Ala Leu Ser Gln Lys Cys Cys Ile Ser Val
        995                 1000                1005
His Leu Glu His Leu Glu Lys Leu Glu Leu His Gln Asn Ala Leu Thr
    1010                1015                1020
Ser Phe Pro Gln Gln Leu Cys Glu Thr Leu Lys Ser Leu Thr His Leu
1025                1030                1035                1040
Asp Leu His Ser Asn Lys Phe Thr Ser Phe Pro Ser Tyr Leu Leu Lys
                1045                1050                1055
Met Ser Cys Ile Ala Asn Leu Asp Val Ser Arg Asn Asp Ile Gly Pro
```

```
            1060                1065                1070
Ser Val Val Leu Asp Pro Thr Val Lys Cys Pro Thr Leu Lys Gln Phe
        1075                1080                1085
Asn Leu Ser Tyr Asn Gln Leu Ser Phe Val Pro Glu Asn Leu Thr Asp
    1090                1095                1100
Val Val Glu Lys Leu Glu Gln Leu Ile Leu Glu Gly Asn Lys Ile Ser
1105                1110                1115                1120
Gly Ile Cys Ser Pro Leu Arg Leu Lys Glu Leu Lys Ile Leu Asn Leu
                1125                1130                1135
Ser Lys Asn His Ile Ser Ser Leu Ser Glu Asn Phe Leu Glu Ala Cys
            1140                1145                1150
Pro Lys Val Glu Ser Phe Ser Ala Arg Met Asn Phe Leu Ala Ala Met
        1155                1160                1165
Pro Phe Leu Pro Pro Ser Met Thr Ile Leu Lys Leu Ser Gln Asn Lys
    1170                1175                1180
Phe Ser Cys Ile Pro Glu Ala Ile Leu Asn Leu Pro His Leu Arg Ser
1185                1190                1195                1200
Leu Asp Met Ser Ser Asn Asp Ile Gln Tyr Leu Pro Gly Pro Ala His
                1205                1210                1215
Trp Lys Ser Leu Asn Leu Arg Glu Leu Leu Phe Ser His Asn Gln Ile
            1220                1225                1230
Ser Ile Leu Asp Leu Ser Glu Lys Ala Tyr Leu Trp Ser Arg Val Glu
        1235                1240                1245
Lys Leu His Leu Ser His Asn Lys Leu Lys Glu Ile Pro Pro Glu Ile
    1250                1255                1260
Gly Cys Leu Glu Asn Leu Thr Ser Leu Asp Val Ser Tyr Asn Leu Glu
1265                1270                1275                1280
Leu Arg Ser Phe Pro Asn Glu Met Gly Lys Leu Ser Lys Ile Trp Asp
                1285                1290                1295
Leu Pro Leu Asp Glu Leu His Leu Asn Phe Asp Phe Lys His Ile Gly
            1300                1305                1310
Cys Lys Ala Lys Asp Ile Ile Arg Phe Leu Gln Gln Arg Leu Lys Lys
        1315                1320                1325
Ala Val Pro Tyr Asn Arg Met Lys Leu Met Ile Val Gly Asn Thr Gly
    1330                1335                1340
Ser Gly Lys Thr Thr Leu Leu Gln Gln Leu Met Lys Thr Lys Lys Ser
1345                1350                1355                1360
Asp Leu Gly Met Gln Ser Ala Thr Val Gly Ile Asp Val Lys Asp Trp
                1365                1370                1375
Pro Ile Gln Ile Arg Asp Lys Arg Lys Arg Asp Leu Val Leu Asn Val
            1380                1385                1390
Trp Asp Phe Ala Gly Arg Glu Glu Phe Tyr Ser Thr His Pro His Phe
        1395                1400                1405
Met Thr Gln Arg Ala Leu Tyr Leu Ala Val Tyr Asp Leu Ser Lys Gly
    1410                1415                1420
Gln Ala Glu Val Asp Ala Met Lys Pro Trp Leu Phe Asn Ile Lys Ala
1425                1430                1435                1440
Arg Ala Ser Ser Ser Pro Val Ile Leu Val Gly Thr His Leu Asp Val
                1445                1450                1455
Ser Asp Glu Lys Gln Arg Lys Ala Cys Met Ser Lys Ile Thr Lys Glu
            1460                1465                1470
Leu Leu Asn Lys Arg Gly Phe Pro Ala Ile Arg Asp Tyr His Phe Val
        1475                1480                1485
Asn Ala Thr Glu Glu Ser Asp Ala Leu Ala Lys Leu Arg Lys Thr Ile
    1490                1495                1500
Ile Asn Glu Ser Leu Asn Phe Lys Ile Arg Asp Gln Leu Val Val Gly
1505                1510                1515                1520
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```
Gln Leu Ile Pro Asp Cys Tyr Val Glu Leu Glu Lys Ile Ile Leu Ser
                1525                1530                1535
Glu Arg Lys Asn Val Pro Ile Glu Phe Pro Val Ile Asp Arg Lys Arg
            1540                1545                1550
Leu Leu Gln Leu Val Arg Glu Asn Gln Leu Gln Leu Asp Glu Asn Glu
        1555                1560                1565
Leu Pro His Ala Val His Phe Leu Asn Glu Ser Gly Val Leu Leu His
    1570                1575                1580
Phe Gln Asp Pro Ala Leu Gln Leu Ser Asp Leu Tyr Phe Val Glu Pro
1585                1590                1595                1600
Lys Trp Leu Cys Lys Ile Met Ala Gln Ile Leu Thr Val Lys Val Glu
                1605                1610                1615
Gly Cys Pro Lys His Pro Lys Gly Ile Ile Ser Arg Arg Asp Val Glu
            1620                1625                1630
Lys Phe Leu Ser Lys Lys Arg Lys Phe Pro Lys Asn Tyr Met Ser Gln
        1635                1640                1645
Tyr Phe Lys Leu Leu Glu Lys Phe Gln Ile Ala Leu Pro Ile Gly Glu
    1650                1655                1660
Glu Tyr Leu Leu Val Pro Ser Ser Leu Ser Asp His Arg Pro Val Ile
1665                1670                1675                1680
Glu Leu Pro His Cys Glu Asn Ser Glu Ile Ile Ile Arg Leu Tyr Glu
                1685                1690                1695
Met Pro Tyr Phe Pro Met Gly Phe Trp Ser Arg Leu Ile Asn Arg Leu
            1700                1705                1710
Leu Glu Ile Ser Pro Tyr Met Leu Ser Gly Arg Glu Arg Ala Leu Arg
        1715                1720                1725
Pro Asn Arg Met Tyr Trp Arg Gln Gly Ile Tyr Leu Asn Trp Ser Pro
    1730                1735                1740
Glu Ala Tyr Cys Leu Val Gly Ser Glu Val Leu Asp Asn His Pro Glu
1745                1750                1755                1760
Ser Phe Leu Lys Ile Thr Val Pro Ser Cys Arg Lys Gly Cys Ile Leu
                1765                1770                1775
Leu Gly Gln Val Val Asp His Ile Asp Ser Leu Met Glu Glu Trp Phe
            1780                1785                1790
Pro Gly Leu Leu Glu Ile Asp Ile Cys Gly Glu Gly Glu Thr Leu Leu
        1795                1800                1805
Lys Lys Trp Ala Leu Tyr Ser Phe Asn Asp Gly Glu Glu His Gln Lys
    1810                1815                1820
Ile Leu Leu Asp Asp Leu Met Lys Lys Ala Glu Glu Gly Asp Leu Leu
1825                1830                1835                1840
Val Asn Pro Asp Gln Pro Arg Leu Thr Ile Pro Ile Ser Gln Ile Ala
                1845                1850                1855
Pro Asp Leu Ile Leu Ala Asp Leu Pro Arg Asn Ile Met Leu Asn Asn
            1860                1865                1870
Asp Glu Leu Glu Phe Glu Gln Ala Pro Glu Phe Leu Leu Gly Asp Gly
        1875                1880                1885
Ser Phe Gly Ser Val Tyr Arg Ala Ala Tyr Glu Gly Glu Glu Val Ala
    1890                1895                1900
Val Lys Ile Phe Asn Lys His Thr Ser Leu Arg Leu Leu Arg Gln Glu
1905                1910                1915                1920
Leu Val Val Leu Cys His Leu His His Pro Ser Leu Ile Ser Leu Leu
                1925                1930                1935
Ala Ala Gly Ile Arg Pro Arg Met Leu Val Met Glu Leu Ala Ser Lys
            1940                1945                1950
Gly Ser Leu Asp Arg Leu Leu Gln Gln Asp Lys Ala Ser Leu Thr Arg
        1955                1960                1965
Thr Leu Gln His Arg Ile Ala Leu His Val Ala Asp Gly Leu Arg Tyr
```

```
    1970                1975                1980
Leu His Ser Ala Met Ile Ile Tyr Arg Asp Leu Lys Pro His Asn Val
1985                1990                1995                2000
Leu Leu Phe Thr Leu Tyr Pro Asn Ala Ala Ile Ile Ala Lys Ile Ala
                2005                2010                2015
Asp Tyr Xaa Ile Ala Gln Tyr Cys Cys Arg Met Gly Ile Lys Thr Ser
            2020                2025                2030
Glu Gly Thr Pro Gly Phe Arg Ala Pro Glu Val Ala Arg Gly Asn Val
        2035                2040                2045
Ile Tyr Asn Gln Gln Ala Asp Val Tyr Ser Phe Gly Leu Leu Leu Tyr
    2050                2055                2060
Asp Ile Leu Thr Thr Gly Gly Arg Ile Val Glu Gly Leu Lys Phe Pro
2065                2070                2075                2080
Asn Glu Phe Asp Glu Leu Glu Ile Gln Gly Lys Leu Pro Asp Pro Val
                2085                2090                2095
Lys Glu Tyr Gly Cys Ala Pro Trp Pro Met Val Glu Lys Leu Ile Lys
            2100                2105
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